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October 29, 1996

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William F. Caton, Acting Secretary  
Federal Communications Commission  
1919 M Street, NW, Room 222  
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Re: CC Docket No. 96-45, Universal Service

Dear Mr. Caton:

We would like to respond to certain statements made at last week's meeting of the Federal State Joint Board in CC Docket No. 96-45, concerning whether loop costs should be considered shared costs, or whether they should be directly allocable to basic service.

This issue has been considered in California proceedings. The California Public Utilities Commission has held that non-traffic sensitive costs should be assigned to basic exchange service. "We concur with the general principle that NTS costs should be assigned to subscribers' basic exchange services."<sup>1</sup>

Economic literature supports this determination. Attached to this letter is a recent article from the *Administrative Law Review* in which explains (see pages 230-233) why loop costs are not common production costs to local exchange carriers and should be directly attributable to subscriber access. The article also explains why subscriber access should be considered a separate service (see pages 234-235).

As Richard Emmerson pointed out to the CPUC, "If end user charges for the loop do not cover its costs (e.g. imagine a customer who buys nothing but flat rate residential service), then the costs must be recovered elsewhere. This is precisely the type of implicit subsidy support which must be made explicit in structuring the Universal Service fund."<sup>2</sup> To comply with the dictates of Section 254 (requiring "specific, predictable and

<sup>1</sup> CPUC D. 94-09-065, p. 44.

<sup>2</sup> Direct Testimony of Richard Emmerson, R. 95-01-020/I.95-01-021, pp. 17-8 [emphasis original]. In fact, in Pacific Bell's network, approximately 30% of our customers are in the precise situation posed by Dr. Emmerson. They buy flat-rate residential service and have no additional usage--no toll calls, no vertical features, no voice mail.

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sufficient Federal and State mechanisms to preserve and advance universal service") the cost of the loop must not be considered a shared cost, but must be assigned wholly to universal service.

In addition, the Subscriber Loop Charge should not be eliminated. The SLC is an explicit mechanism which recovers a (large) portion of the interstate contribution to universal service. It is not an implicit subsidy, and does not need to be eliminated in order to be compliant with section 254 of the Telecommunications Act.

Sincerely,

A handwritten signature in cursive script, reading "Alan F. Ciamporero".

Alan F. Ciamporero

cc: Universal Service Joint Board and staff

## THE ECONOMIC NECESSITY OF AN INCREASED SUBSCRIBER LINE CHARGE (SLC) IN TELECOMMUNICATIONS

Steve G. Parsons\*

### I. Introduction

Telecommunications customers have a dedicated communications path from their premises to a local telephone company switch that provides them with access to local and long-distance telecommunications networks. The vast majority of the cost of this subscriber access does not vary with "traffic" (the volume of calls). Traditionally, in the regulation of telephone service in the United States, a portion of these "nontraffic-sensitive costs" of providing final customers with access to the telecommunications network are allocated to long-distance service, and in particular to interstate long-distance service.<sup>2</sup> Prior to

\* Division Manager—Regulatory and Litigation Support, Indetech International. Ph.D. Economics, University of California, Santa Barbara, 1982. This paper represents the opinion of the author and does not necessarily represent the opinions, business plans, or position of SBC Communications or any of its subsidiaries. The author wishes to thank Richard Hartgrove, Alexander Larson, Thomas Makarewicz, Margret Starkey, and Michael Zpevak for helpful comments on earlier drafts. Thanks in particular are due to Chris Graves for research assistance.

1. This term is commonly used in telecommunications, in contrast to the economic term "fixed." See, e.g., Alfred E. Kahn, *The Road to More Intelligent Telephone Pricing*, 1 YALE J. ON REG. 139, 140 (1984). A more accurate term is "volume insensitive cost" as distinct from costs that vary with volume or traffic.

2. The allocation occurs through an arcane system of separations and settlements. See generally, *In re NYNEX Transition Plan to Preserve Universal Service in a Competitive Environment, Petition for Waiver Before the Federal Communications Commission* (Dec. 15, 1993) (Exhibit 7) [hereinafter *NYNEX Transition Plan*] (on file with author); ROBERT W. CRANDALL, *AFTER THE BREAKUP: U.S. TELECOMMUNICATIONS IN A MORE COMPETITIVE ERA* 24-27 (1991); PETER TEMIN, *THE FALL OF THE BELL SYSTEM: A STUDY IN PRICES AND POLITICS* 19-27 (1987); BRIDGER M. MITCHELL & INGO VOGLERANG, *TELECOMMUNICATIONS PRICING THEORY AND PRACTICE* 213 (1991); JOHN T. WENDERS, *THE ECONOMICS OF TELECOMMUNICATIONS: THEORY AND POLICY* 2-5 (1987); Kahn, *supra* note 1, at 141-42; David L. Kaserman et al., *Cross-Subsidization in Telecommunications: Beyond the Universal Service Fairy Tale*, 2 J. OF REG. ECON. 231 (1990); Paul W. MacAvoy & Kenneth Robinson, *Winning By Losing: The AT&T Settlement and Its Impact on Telecommunications*, 1 YALE J. ON REG. 1, 2-9 (1983); Paul W. MacAvoy & Kenneth Robinson, *Losing By Judicial Policymaking: The First Year of the AT&T Divestiture*, 2 YALE J. ON REG. 225, 228-30 (1985); Peter Temin & Geoffrey Peters, *Cross-Subsidization in the Telephone Network*, 21 WILLAMETTE L. REV. 144 (1985) [hereinafter Temin & Peters, *Cross-Subsidization*]; Peter Temin & Geoffrey Peters, *Is History Stronger than Theory? The Origin of Telephone Separations*, 75 ECON. HIST.

the 1980s the costs allocated to the interstate jurisdiction were recovered through the interstate long-distance rates of AT&T.<sup>3</sup> After the divestiture of AT&T, the local facilities connecting final customers to telecommunications networks became the assets of the Bell operating companies. The interstate allocation of the nontraffic-sensitive costs of these facilities initially was recovered largely through a portion of the per minute charge to the long-distance (interexchange) carriers called a Carrier Common Line Charge (CCLC).<sup>4</sup> This is part of the switched access charge paid by interexchange carriers for use of the local network to complete long-distance calls. In 1985 a subscriber line charge (SLC, at times referred to as an end user common line charge, or customer access line charge)<sup>5</sup> was instituted to recover part of the nontraffic-sensitive subscriber access costs that had been allocated to federal jurisdiction. The SLC is a recurring monthly charge per subscriber access line paid by final telecommunications customers and is completely independent of the customers' usage of the line.

Today, the interstate SLC generates approximately \$6.4 billion in annual revenue; however, interstate switched access continues to generate over \$11.5 billion in annual revenue,<sup>6</sup> largely to contribute to the nontraffic-sensitive costs of subscriber access. Although the SLC has been discussed briefly in a few law reviews,<sup>7</sup> economics, policy, and telecommunications industry pub-

324 (1985) [hereinafter Temin & Peters, *Is History Stranger than Theory?*]; Richard H.K. Victor, *AT&T and the Public Good*, in *FUTURE COMPETITION IN TELECOMMUNICATIONS* 41 (Stephen P. Bradley & Jerry A. Hausman eds., 1989); Richard H.K. Victor & Dekkers L. Davidson, *Economics and Politics of Deregulation: The Issue of Telephone Access Charges*, 5 J. POL'Y & ANALYSIS 3, 6 (1983). Local telephone companies provide some intrastate services (generally facing rate-of-return regulation by a state public utility or service commission) and some interstate services (regulated by the Federal Communications Commission). Cost allocation is therefore required to divide the revenues, expenses, rate-base, and capital costs between these two regulatory jurisdictions.

3. Other long-distance carriers paid access charges after the so-called ENFIA decision. *See* Exchange Network Facilities for Interstate Access (ENFIA), 71 F.C.C.2d 440 (1979). *See generally* Victor, *supra* note 2, at 83; Victor & Davidson, *supra* note 2, at 6-7.

4. A portion of the nontraffic-sensitive network costs are also recovered through part of the switching charge itself, beyond the CCLC. *See, e.g., NYNEX Transition Plan*, *supra* note 2, at 3.

5. The term "End User Common Line" charge (EUCL) was originally employed. *See In re MTS and WATS Market Structure*, 93 F.C.C.2d 241, 291 (1983) (Third Report and Order) (establishing a transition plan for the ultimate recovery of a substantial portion of the fixed exchange plant costs through a flat per line charge assessed upon end users, this plan was modified on reconsideration). The term "Customer Access Line Charge" (CALC) was often used around 1985. The term "subscriber line charge" (SLC) is now the most common term and will be used throughout this article.

6. F.C.C. STATISTICS OF COMMUNICATIONS COMMON CARRIERS 230, Table 6.2 (1993/1994). In addition, intrastate access, switched and special, generates over \$6.9 billion annually. *Id.*

7. *See* Susan L. Bloch, *Orphaned Rules in the Administrative State: The Fairness Doctrine and Other Orphaned Prognosis of Interactive Deregulation*, 76 Geo. L.J. 59, 60-62 (1987) (mentioning congressional opposition to the SLC and delays in institution); Alfred E. Kahn & William B. Shew, *Current Issues in Telecommunications Regulation: Pricing*, 4 YALE J. ON REG. 191, 195-97 (1987) (briefly discussing the proposed and actual increases in the SLC and reductions in toll prices); Alexander C. Larson & Mark E. Meitzen, *Recent State Legislation for Telecommunications: Brave New World, or Bad Public Utility Law?*, 14 Geo. MASON U. L. REV. 99, 128-29 (1991) (mentioning the SLC in a calculation of an average monthly telephone bill); Alexander C. Larson & Douglas R. Mudd, *Collocation and Telecommunications Policy: A Fostering of Competition on the Merits?*, 28 CAL. W. L. REV. 263, 313 n.31 (1991-1992) (mentioning that increases in the SLC allowed lower long-distance prices); Randolph

lications,<sup>8</sup> there exists no single comprehensive written treatment focusing on the policy implications of the SLC and switched access charges. However, this topic is growing in importance and has been raised in two recent speeches by FCC Chairman Reed Hunt.<sup>9</sup> This article describes why it is necessary and appropriate to increase the SLC such that nonvolume sensitive charges (the SLC and the basic recurring monthly telephone bill) fully recover the nontraffic-sensitive costs of providing subscriber access. This increase will allow a commensurate reduction in switched access charges to long-distance carriers, producing reductions in long-distance charges to customers.

This approach represents sound business policy, public policy, and rational economics for several reasons. In section II, loop costs are shown to be directly attributable to subscriber access; they are not costs common to the production of all telecommunications services. Loop costs are often mistakenly considered as common production costs for several reasons. Perhaps the most typical mistake in evaluating loop costs is thinking of them from the perspective of the customer rather than the Local Exchange Company (LEC or local telephone company) providing the service. Subscriber access and the loop may be considered a common cost to the customer, but this does not make the loop a common production cost to the LEC.

Section III describes why, even if loop costs were to be considered common costs to the LEC, one cannot justify high switched access charges (and therefore high long-distance charges) through the use of fully distributed costs. Fully distributed costs have been thoroughly discredited in legal, economic, and managerial accounting literature.

Section IV discusses why subscriber access is a separate service in its own right. It is typical in unregulated markets to consider ingress/access as a service in its own right, recognizing the costs of the service as such. The costs of subscriber access should be recognized for what they are and should not be hidden as costs allocated to the traffic-sensitive switched access charge.

J. May & Richard S. Whitt, *Information Services in the 1990s: A Case Study in Rethinking the Beneficial Uses of Industrial Policy*, 8 HIGH TECH. L.J. 1, 12 (1993) (mentioning that end users pay a flat-rated SLC).

8. CRANDALL, *supra* note 2, at 30-33, 133-42 (discussing the history of the SLC and the inefficiency of interexchange carrier access charges); WINDERS, *supra* note 2, at 165; Joseph P. Gatto et al., *Interstate Switched Access Demand Analysis*, 3 INFO. ECON. & POL'Y 333 (1988) (mentioning the SLC in describing carrier common line charges and the forecasts necessary to set CCLC rates); Terry Halpin et al., *The Subscriber Line Charge Program Has Caused a Decrease in Telephone Bills*, 4 TELMATICS 8 (Nov. 1987) (examining the effects of the initial \$2 SLC on customer bills); Alexander C. Larson et al., *The Effect of Subscriber Line Charges on Residential Telephone Bills*, TELCOMM. POL'Y, Dec. 1989, at 337 (examining the effects of a \$2 SLC and \$2.60 SLC on residential telephone bills); Viator, *supra* note 2, at 85-89 (discussing the SLC, carrier common line charges and timing of charges); Viator & Davidson, *supra* note 2, at 10 (briefly describing the SLC, carrier common line charges and concerns over economic efficiency).

9. See Reed Hunt, Remarks at the Fall Business Conference of the Competitive Telecommunications Association in New Orleans, Louisiana (Oct. 10, 1995) (on file with author); Reed Hunt, Remarks at the National Consumers Week Symposium in Washington, D.C. (Oct. 26, 1995) (on file with author) (suggesting consideration of an increased SLC and reductions in switched access charges).

Section V explains why an increase in the SLC is economically efficient. Economic efficiency requires that prices for services reflect the costs of production. Specifically, price structures should reflect cost structures. Nontraffic-sensitive costs should be recovered through nontraffic-sensitive charges such as a SLC. In addition, customer demand is relatively unresponsive to an increase in the SLC, while demand for toll and usage services is substantially more responsive to price changes. Also, high switched access rates encourage uneconomic bypass of LEC facilities. These factors provide additional economic support for increasing the SLC with a corresponding reduction in switched access charges.

In section VI, evidence is examined that indicates that an increase in the SLC need not raise total customer bills or harm universal service. The average customer will receive a net reduction in total billing when a SLC increase is instituted in combination with a reduction in switched access charges (and an expected reduction in toll prices by interexchange carriers). Total bills should fall for the average senior citizen and the average low-income citizen. In fact, most customers who disconnect service do so because of high long-distance charges rather than because of the local service and SLC charges. The SLC can be increased without damage to universal service. Concerns regarding universal service are better met with targeted programs such as "Lifeline" or "Link up" programs rather than a broad-based approach of minimizing monthly recurring charges for customers that would remain on the network regardless of the level of the SLC.

Section VII provides an important caveat regarding franchise obligations and one-time facilities placement costs. Because of the franchise obligation to serve all customers in a timely fashion, facilities must be in place well in advance of actual customer demand. This obligation creates a tremendous potential to strand facilities. Stranded facilities and sunk costs are valid components of the rate base for traditional rate-of-return regulation; however, these costs should not be used in establishing the lower bound for pricing services.

## II. Loop Costs Are Not Common Production Costs

Traditionally, the term "common line" was applied to the "loop" (generally a pair of twisted copper wires and a portion of the capacity of the infrastructure necessary for the loop, such as conduit, trench, and telephone pole space) and other facilities connecting subscribers to local and long-distance networks. The term "common line" was employed because the same line was "used" for both local and long-distance calls.<sup>10</sup> For a variety of reasons, analysis of loop costs is susceptible to logical error. A true common cost is a cost that must be incurred regardless of the volume of associated individual services. When considered carefully and properly, it is clear, from the weight of economics literature on

10. See e.g., *In re MTS and WATS Market Structure*, 90 F.C.C.2d 135, 142 (1982) (defining common lines as "lines that can be used for both local and interstate services. . .").

the subject, that loop costs are not common costs.<sup>11</sup> Rather, they are directly attributable to the services that cause them (e.g., private line, special access, Centrex, and the subscriber access component of basic local exchange service). There are several reasons why loop costs are not common costs, some of which are treated here.

First, it has been suggested that the loop is a common cost because several services or customers may use the loop or benefit from the loop. However, whether a service or customer "benefits from" or "uses" a facility or cost item does not mean that such a second service or customer *causes* a cost. A long-distance caller may "use" inside wire, a PBX, terminal equipment (e.g., a telephone handset and base), and even a hearing aid to complete an intraLATA toll call.<sup>12</sup> Obviously, the simple use of these items by the customer does not by itself make them costs *to the LEC* of producing the toll call. "Use" or "benefit," by itself, does not indicate whether a cost is directly attributable (incremental) to a service or whether the cost is common to the services that "use" or "benefit" from the cost item. Cost requires that one service *precludes* an alternative activity or service that has value: that a cost is actually caused. For example, when a customer orders a dedicated circuit, the customer's order precludes any other customer from using or ordering that particular circuit. In contrast, a minute of local usage over a basic exchange line does not preclude a subsequent toll call or the use of a vertical service.<sup>13</sup>

Second, in dealing with the costs of subscriber access, it is easy to confuse the perspectives of the customer and the service provider (the LEC). Although the price for subscriber access may be a common cost *to the customer*, loop costs are not necessarily common production costs *to the LEC*.<sup>14</sup> It is certainly possible that a customer may purchase subscriber access for multiple activities. For example, consider a hypothetical firm that has two products—computer network consulting, provided locally, and personal computer software, sold internationally. All the local telephone calls made by the firm are for its computer network consulting, while all its long-distance calls are made specifically for its software products. The firm pays a monthly fee of \$30 for subscriber access and pays separate charges for local and long-distance calls. This firm may well consider the \$30 subscriber access fee to be a cost common to the provision of its two products, consulting and software.

11. See, e.g., Weyers, *supra* note 2, at 177-83; Kahn & Shew, *supra* note 7, at 200-10 (discussing six fallacies that have led to the misclassification of loop costs as common costs); David L. Kaserman & John W. Mayo, *Cross-Subsidies in Telecommunications: Roadblocks on the Road to More Intelligent Telephone Pricing*, 11 YALE J. ON REG. 119 (1994); Steve G. Parsons, *Seven Years After Kahn and Shew: Lingering Myths on Costs and Pricing Telephone Service*, 11 YALE J. ON REG. 149 (1994) (expanding on Kahn and Shew's six fallacies).

12. Local Access Transport Areas (LATAs) are the geographic point of demarcation between local telephone companies and long-distance companies as established at the divestiture of AT&T.

13. As a practical matter, the capacity of the local exchange line will not "exhaust" with a typical increase in the use of the line. Therefore, use/traffic or an increase in use/traffic does not preclude any other use/traffic.

14. Parsons, *supra* note 11, at 158-59.

A customer's use of subscriber access service and its role in the customer's cost function have no bearing on whether these costs are common or directly attributable to the LEC.<sup>15</sup> Surely the cost to a LEC of providing a service is not a common cost simply because customers use the service for multiple activities.<sup>16</sup> This distinction between cost to the customer and cost to the provider is critical to a sound understanding of telecommunications costs.

Third, even if loop costs were somehow common costs to the LEC of providing multiple services to a specific customer, such costs would not be common across customers. Loop facilities are dedicated to specific customers at any point in time.<sup>17</sup> For the time period that the customer has ordered the loop, the cost of the loop is directly attributable to that customer. Therefore, even if loop costs were somehow common to multiple services, they are still directly attributable to that particular customer. For pricing purposes, it is best to recover the cost of the loop from subscriber access (or any other service such as providing the loop) because it is often unknown whether the customer will order any other service or what the volume of such a purchase might be.

Fourth, it is important to avoid confusing the concepts of revenue and cost. Cross-elastic or spill-over revenue effects and producer costs are independent economic phenomena. Revenue effects are a function of customer demand while producers' costs are determined largely by input prices. Certainly subscriber access service, local usage, and long-distance usage are likely to be cross-elastic to some degree on the revenue/demand side. But while the existence of a strong complementary effect between services may provide some rationale for pricing one of the complements, lower cross-elastic revenue effects do nothing to change the fundamental nature of the costs of providing the services. Subscriber access costs are not common to the provision of local and long-distance usage simply because customers consider these services to complement each other.

15. "Rejecting this argument (for example, by accepting arguments that loop costs are common costs because the customer uses the loop for many things) leads to a variety of logically untenable results." Parsons, *supra* note 11, at 159 n.35. For example, a telephone company that provides only a single product, subscriber access, would have to classify its costs as common costs despite having no other products to share the common cost. Such faulty reasoning would lead to the conclusion that the cost to a highway department of constructing a segment of highway would be considered a common cost to distributors of burthened means, milk, stereo equipment, and dry cleaning if each used the section of highway to receive its products. Similarly, a car would be classified as a common cost to models since it is used to drive to models. "These implications fly in the face of common sense; the premise on which they are based is simply wrong." *Id.*

16. "If this were true, it would lead to the peculiar result that loop costs are common costs when used to provide subscriber access to some customers, those using the service for multiple activities, but not common when providing service to other customers" such as a single-product private line customer. Parsons, *supra* note 11, at 159 n.36. "As customers move, the same loop would be considered common at some points in time but not at others." *Id.*

17. Regulatory decisions regarding loop costs have been mixed with regard to their proper application of sound economic theory. See Parsons, *supra* note 11. Certainly some of the regulatory decisions have properly described the germane principles in this regard. See, e.g., *In re MTS and WATS Market Structure*, 97 F.C.C.2d 682, 688-89 (1983) (*Memorandum, Opinion and Order*) ("The cost of a common line is attributable to the user who has that line, which is dedicated to his use and which remains available for his exclusive use in sending or receiving any telecommunications that can be transmitted through the local dial switch." *Id.*)



Economic principles indicate that loop costs are not common costs to the LEC, but rather are incremental to the services that cause them (e.g., private line, special access, Centrex and the subscriber access component of basic local exchange service). Since loop costs are directly attributable incremental costs, they must be recovered by the services that cause them to be incurred. These costs cannot be allocated to other services and should not be recovered through the pricing of other services such as toll.

### III. Fully Distributed Costs Cannot Justify High Switched Access Charges

Even if the loop were considered a common cost to the LEC, the CCLC is not justified and should be reduced or eliminated. Traditionally, loop costs have been allocated to federal jurisdiction to reflect interstate long-distance calling that "used" the local loop. This process is a form of full allocation or distribution of costs (FDC). FDC methods generally begin with a measure of the directly attributable costs of services and add an allocated portion of the common costs of the company to each service or even to each unit of service.<sup>18</sup> Unfortunately, they are useless in advancing public policies that seek to proscribe cross-subsidies, especially if there are competitive pressures on LEC services. Fully distributed costs have no theoretical foundation, are necessarily arbitrary, and cannot be used in any meaningful way to establish prices or set upper or lower bounds for pricing. Thus, they are useless for establishing a standard for cross-subsidy or anticompetitive practices. The academic literature in the fields of economics, managerial accounting, and law contain a wealth of articles condemning FDC methods as the basis for business or public utility policies.<sup>19</sup> In

18. Generally, however, fully distributed costs employ embedded (historical) accounting measures of cost, while economic measures of cost are prospective.

19. Parsons, *supra* note 11, at 166 n.70 (citing many of the following articles). See *In re Coal Rates Guidelines Nationwide*, 1 I.C.C.2d 520 (1965); 1965 COUNCIL OF ECONOMIC ADVISORS, ANNUAL REPORT 127 (1966); WILLIAM J. BAUMOL, SUPERFAIRNESS 134-36 (1966); JAMES C. BOWBRIDGE, PRINCIPLES OF PUBLIC UTILITY RATES 461 (1961); J. MAURICE CLARK, STUDIES IN THE ECONOMICS OF OVERHEAD COSTS 14 (1923); ANN F. FRIEDLAENDER, THE DILEMMA OF FREIGHT TRANSPORT REGULATION 133 (1969); PAUL J. GARFIELD & WALLACE F. LOVEJOY, PUBLIC UTILITY ECONOMICS 140-41 (1964); WALTER B. MCFARLAND, CONCEPTS FOR MANAGEMENT ACCOUNTING 46 (1966); JOHN J. NANCE, SPLASH OF COLORS: THE SELF-DESTRUCTION OF BRANIFF INTERNATIONAL 72, 250 (1984) (describing the FDC methods used by Braniff to report profits on South American operations to regulators which were later used to make an improper exit decision); DUDLEY F. PROZUM, PUBLIC REGULATION OF BUSINESS 194-96 (1965); CHARLES F. PHELPS, JR., THE ECONOMICS OF REGULATION 395-96 (1969); MILTON SPENCER ET AL., MANAGERIAL ECONOMICS: TEXT, PROBLEMS, AND SHORT CASES 367 (4th ed. 1975); ARTHUR L. THOMAS, THE ALLOCATION PROBLEM: PART TWO 156-57 (1974); WENDERS, *supra* note 2, at 174; WILLIAM J. BAUMOL ET AL., *The Role of Cost in the Minimum Pricing of Railroad Services*, 35 J. BUS. 357 (1962); WILLIAM J. BAUMOL & ALFRED G. WALTON, *Full Costing, Competition and Regulatory Practice*, 82 YALE L. J. 639 (1973); RONALD R. BRASUTIGAM, *An Analysis of Fully Distributed Cost Pricing in Regulated Industries*, 11 BELL J. ECON. 162 (1980); RONALD R. BRASUTIGAM, *Optimal Pricing With Intermodal Competition*, 69 AM. ECON. REV. 38 (1979); RONALD H. COASE, *The Theory of Public Utility Pricing and Its Application*, 1 BELL J. ECON. & MGMT. SCI. 113 (1970); JOHN DEARDEN, *Cost Accounting Comes to Service Industries*, HARV. BUS. REV., Sept.-Oct. 1978,

comparison, the literature contains very few rigorous analyses of FDC pricing that are even partially favorable.<sup>20</sup>

Thus, even if one were to consider loop costs as common costs, arbitrary allocations of such costs are inappropriate. Common costs are not recovered by allocating them; they are recovered only by providing services of value to customers at prices the market will bear. In essence, the market will determine the level of contribution any particular service can make to joint and common costs.

#### IV. Subscriber Access Should Be Considered a Separate Service

To consider the proper pricing of telecommunications services, it is important to recognize that subscriber access is a service in its own right.<sup>21</sup> While customers without access can place outbound calls from a pay phone or a neighbor's house, most people value private and convenient access to the phone network and the capacity to make and receive calls readily. More importantly, providing subscriber access involves costs that can be identified separately and attributed directly to the service. Local telephone companies undeniably incur costs when providing end users with subscriber access to the network. These costs are independent of customers' use of the network because they are incurred whether or not customers actually use the network. A customer who demands subscriber

at 132; Gerald R. Faulhaber, *Cross-Subsidization: Pricing in Public Enterprises*, in *PRICING IN REGULATED INDUSTRIES: THEORY AND APPLICATION II* 109-12 (John T. Wenders ed., 1979); Samuel Huntington, *The Rapid Emergence of Marginal Cost Pricing in the Regulation of Electric Utility Rate Structures*, 55 B.U. L. REV. 689 (1975); Alfred E. Kahn, *Deregulation: Looking Backward and Looking Forward*, 7 YALE J. ON REG. 325 (1990); Robert S. Kaplan, *One Cost System Isn't Enough*, HARV. BUS. REV., Jan.-Feb. 1988, at 61; Kaserian & Mayo, *supra* note 11, at 127; Alexander C. Larson, *Cost Allocations, Predation, and Cross-Subsidies in Telecommunications*, 14 J. CORP. L. 377 (1989), reprinted in 12 PUB. UTIL. L. ANTHOLOGY 283 (1989); Joseph R. Rose, *Regulation of Intermodal Rate Competition in Transportation*, 69 MICH. L. REV. 1011 (1971); George Sweeney, *Welfare Implications of Fully Distributed Cost Pricing Applied to Partially Regulated Firms*, 13 BELL J. ECON. 525 (1982); W.A. PATTON & A.C. LITTLETON, *CORPORATE ACCOUNTING STANDARDS* 121 (1940), cited in William J. Vatter, *Limitations of Overhead Allocation*, 20 ACCT. REV. 163 (1945); Robert D. Willig & William J. Baumol, *Railroad Deregulation: Using Competition as a Guide*, 11 REG. 28 (1987); William J. Baumol et al., *How Arbitrary is "Arbitrary"?—or, Toward the Deserved Demise of Full Cost Allocation*, PUB. UTIL. FORT., Sept. 3, 1987, at 16; Hankell P. Wald, *The Theory of Marginal Cost Pricing and Utility Rates*, PUB. UTIL. FORT., JUNE 22, 1967, at 15. See generally RAY H. GARRISON, *MANAGERIAL ACCOUNTING: CONCEPTS FOR PLANNING, CONTROL, DECISION MAKING* 594-96 (5th ed. 1988).

20. See *COST ALLOCATION: METHODS, PRINCIPLES, APPLICATIONS* (H. Peyton Young ed., 1985). "However, the fringe of the economics discipline that presents cost allocations in a (somewhat) positive light appears to use the term to mean relatively mechanical methods of constrained pricing, and the costs created by such calculations do not correspond to traditional concepts of economic costs." Parsons, *supra* note 11, at 166 n.71. See Steve G. Parsons, *A Decision-Based Specification of Costs*, 18 (May 28, 1993) (unpublished manuscript, on file with the author). See also BAUMOL, *SUPERFAIRNESS*, *supra* note 19, at 143 ("Second, we note that Ramsey pricing has sometimes been described as a form of full cost allocation simply because Ramsey prices must satisfy [the equation in which the sum of service revenues equals the total cost of the firm]. But that is a complete misunderstanding of the matter, involving what amounts to a play on words." *Id.*).

21. See, e.g., WENDERS, *supra* note 2, at 177-83; Kahn & Shew, *supra* note 7, at 200-02; Parsons, *supra* note 11, at 153.

access with no intention of ever placing a call—the customer may desire subscriber access only to receive calls in emergencies—causes the same loop costs as other customers that use the network frequently.

Charges for access-like services are typical in competitive markets throughout the economy. Country club and health club memberships, restaurant minimum fees, cover charges at bars, credit card annual fees, access fees for on-line computer services, and monthly fees for bank checking accounts illustrate the practice of charging fees solely for ingress. In real estate contracts, access across adjacent property for a second entrance generally has a positive price. Access-type services are often so specific to the asset that the access facilities are purchased outright by the customer. For instance, in paving a residential driveway, the property owner generally buys the facilities providing access—a route between a garage and the network of public roads. A firm that digs wells on customers' land is unlikely to recoup well digging cost simply through "usage" charges. A one-time charge for access to water (well digging) is much more likely. Even when the access facility is used by multiple customers, and when the cost of access is relatively high, e.g., with a multilevel parking garage for a downtown shopping center, there is generally a separate access (parking) charge.

Subscriber access bears conceptual similarities to an option clause in a contract. Stock options, the right to purchase or sell stock at a given price, are bought and sold in well-developed markets. Subscriber access to the telecommunications network with local measured service<sup>22</sup> is analogous to stock options in that each has a separately identifiable cost and each provides only the opportunity for use. Also, with subscriber access and stock options, actual use causes its own costs and has its own charges. In contracts for commercial office space, options to expand beyond current leased space are common. Such options represent access to additional space and the option itself generally has a price separate from the price for the actual use of the additional space, if such use occurs. Thus, charging for access alone is a well-established commercial practice.

As a separately identifiable service with separately identifiable costs, subscriber access should be priced to recover the costs it causes. An increase in the SLC is an appropriate way to realign costs with the services that cause them.

## **V. An Increase in the SLC Will Improve Economic Efficiency**

Economic efficiency requires that goods and services are priced to reflect the costs of provision. More specifically, it is important to have price structures and price levels reflect the "structure" and level of costs. As described earlier,

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22. Local measured service is a local service pricing method that has one charge simply for access to the network and one or more types of usage charges (sometimes based on frequency, duration, distance and time of day of calls). The vast majority of residential local telephone service in the United States is flat rate service where access and local usage are bundled together with a single charge.

loop costs are properly attributed to the services that cause them. These costs should be recovered from the services that cause them. Even if one incorrectly believes that loop costs are common costs, these costs are undeniably nontraffic-sensitive; where possible, nontraffic-sensitive costs should be recovered through nontraffic-sensitive charges.<sup>23</sup> Traffic-sensitive rates should reflect traffic-sensitive costs rather than nontraffic-sensitive costs.

Such a pricing approach is sometimes referred to as multipart, nonuniform, or nonlinear pricing and is well-known and generally endorsed in economics literature.<sup>24</sup> One-time nonrecurring fees, monthly recurring fees, usage charges, volume discounts, and distance and time-of-day charges are all examples of components of a multipart pricing approach. The efficient pricing of telephone service generally requires a two-part or multipart tariff such as a fixed charge to cover the nontraffic-sensitive costs of access, and a variable charge to cover the traffic-sensitive costs of network usage. Each component of a two-part or multipart tariff should reflect its incremental costs.

In addition to traffic-sensitive costs and nontraffic-sensitive costs that are directly attributable to individual services, multiproduct telecommunications firms generally face significant joint and common costs that are not attributable to any service. As discussed earlier, the very concept of cost causation requires that common costs not be allocated to the individual units of service or even to individual services. Certainly the joint and common costs of any company must be recovered for the company to remain financially viable. However, cost recovery is a pricing and marketing decision that should be based on market and demand information rather than formulae for allocating costs. The only cost information relevant to the pricing of usage/traffic is traffic-sensitive costs. A fixed monthly charge, independent of usage/traffic, should be used to recover the fixed costs of providing customer access to the network. A traffic-sensitive charge for both local and long-distance traffic should be employed to recover traffic-sensitive costs.<sup>25</sup>

23. *See, e.g.*, Kaserman & Mayo, *supra* note 11, at 135 ("Regardless of the position one adopts, however, there is no economic justification for a system that places the burden of fixed network costs on usage-sensitive prices." *Id.*); Kahn, *supra* note 1, at 140-41; MARIA E. MAHER, ACCESS COSTS AND ENTRY IN THE LOCAL TELECOMMUNICATIONS NETWORK: A CASE FOR DE-AVERAGED RATES (Dep't of Applied Economics, University of Cambridge Working Paper No. 9315, 1993) (on file with author).

24. *See, e.g.*, STEPHEN J. BROWN & DAVID S. SIBLEY, THE THEORY OF PUBLIC UTILITY PRICING 61 (1986); ERNEST GELLHORN & RICHARD J. PIERCE, JR., REGULATED INDUSTRIES 217-21 (1982); MITCHELL & VOGLIANG, *supra* note 2, at 221; David D. Friedman, *In Defense of the Long-Haul/Short-Haul Discrimination*, 10 BELL J. ECON. 706 (1979); Kaserman & Mayo, *supra* note 11, at 124-26; Hayne E. Leland & Robert A. Meyer, *Monopoly Pricing Structures with Imperfect Information*, 7 BELL J. ECON. 449 (1976); Steven C. Littlechild, *Two-part Tariffs and Consumption Externalities*, 6 BELL J. ECON. 661 (1975); A. Michael Spence, *Multi-Product Quantity-Dependent Prices and Profitability Constraints*, 47 REV. OF ECON. STUD. 821 (1980); Robert Willig, *Pareto-Superior Nonlinear Outlay Schedules*, 9 BELL J. ECON. 56 (1978).

25. For local usage/traffic, this also requires that the additional cost of measuring traffic is less than the welfare gain from more efficient pricing for usage/traffic. *See generally* WENDERS, *supra* note 2, at 93-116; James M. Griffin & Thomas H. Mayor, *The Welfare Gain From Efficient Pricing of Local Telephone Services*, 30 J.L. & ECON. 465 (1987).

Traditionally, subscriber access has been priced at very low levels and interexchange carrier access and toll have been priced at very high levels.<sup>26</sup> The traditional pricing of subscriber access at inefficiently low levels and toll and interexchange carrier access at inefficiently high levels has received some attention in economics literature. Estimates of the resulting loss in economic welfare are substantial. An article by John Wenders and Bruce Egan<sup>27</sup> provides an estimate that the overpricing of long-distance service (toll prices well in excess of incremental or marginal costs) in 1982 lead to an annual loss in economic welfare (consumer welfare in this case) of approximately \$10 billion.<sup>28</sup> They estimate that the underpricing of local exchange access (local prices below marginal or incremental costs) caused only a \$.1 billion loss in economic welfare.<sup>29</sup>

Robert Crandall estimates that by 1988, the institution of the SLC and reductions in interstate toll caused welfare gains from 1984 levels of \$1.4 billion annually with potential gains from a further increase in the SLC of \$3.1 billion annually in total.<sup>30</sup> Crandall also estimates that the remaining welfare gains that could occur with efficient pricing of interstate and intrastate interexchange carrier access/long-distance service are \$10.9 billion annually.<sup>31</sup> Bruce Egan found that the overpricing of intrastate toll in Missouri in 1979 caused an annual welfare loss of approximately \$22 million.<sup>32</sup> Another study found that the institution of a \$.35 SLC lead to at least a \$584 million annual welfare gain in portions of only five states.<sup>33</sup> Furthermore, a later study found that the institution of a \$.26 SLC lead to a \$370 million annual welfare gain for residential customers alone in portions of only five states.<sup>34</sup> An article by James Griffin<sup>35</sup> indicates

26. See generally TEMIN, *supra* note 2; LELAND L. JOHNSON, RAND CORP., COMPETITION AND CROSS-SUBSIDIZATION IN THE TELEPHONE INDUSTRY (1982); WENDERS, *supra* note 2; Jerry Hausman et al., *The Effects of the Breakup of AT&T on Telephone Penetration in the United States*, 83 AM. ECON. REV. 178 (1993) [hereinafter Hausman et al. 1993]; Kahn, *supra* note 1; Kaserman et al., *supra* note 2; Temin & Peters, *Cross-Subsidization*, *supra* note 2; Temin & Peters, *Is History Stranger than Theory*, *supra* note 2.

27. John T. Wenders & Bruce L. Egan, *The Implications of Economic Efficiency for US Telecommunications Policy*, 10 TELCOMM. POL'Y 33 (1986). See also WENDERS, *supra* note 2, at 78-90.

28. Wenders & Egan, *supra* note 27, at 36. Because telecommunications providers were rate-of-return regulated during this time period, the net loss in economic welfare represents a net loss in consumer surplus, i.e., the full loss by definition is passed through to consumers.

29. *Id.* The loss is much smaller since the elasticity of demand for local service is very small relative to the elasticity for toll service. The vast majority of the change in revenue from this service represents a transfer. Pricing local exchange service substantially above its incremental cost would similarly lead to a very small reduction in welfare; this is precisely why Ramsey-pricing approaches suggest that inelastic service such as local provide a substantial contribution to common costs—because customers will consume approximately the efficient quantity regardless of the price. See *infra* note 43.

30. CRANDALL, *supra* note 2, at 140.

31. *Id.* at 141.

32. James M. Griffin, *The Welfare Implications of Externalities and Price Elasticities for Telecommunications Pricing*, 64 REV. ECON. & STAT. 59 (1982). See also WENDERS, *supra* note 2, at 83.

33. Halpin et al., *supra* note 8, at 12. The study is for Southwestern Bell Corporation territory which includes portions of Arkansas, Kansas, Missouri, Oklahoma and Texas.

34. See Larson et al., *supra* note 8.

35. Griffin, *supra* note 32.

that, in 1975, the overpricing of toll and the underpricing of local lead to a \$1.1 billion to \$1.5 billion national annual net loss in consumer welfare.<sup>36</sup>

Some of the existing estimates of the economic welfare effects of overpricing toll and underpricing local subscriber access are based on prices prior to the institution of the existing federal SLC and the commensurate reductions in switched access charges and interstate toll rates.<sup>37</sup> This factor should work to reduce the remaining welfare benefit possible of a further increase SLC. However, two factors would cause a current nominal estimate of the remaining potential welfare gains from an increase in the SLC to be larger than those listed above. First, the estimates above are in 1979, 1982, 1979, and 1975 prices respectively; nominal valuations in 1994 would be substantially higher. And second, the size of the telecommunications market is now much larger, and therefore the potential remaining welfare gains are larger.

Recent estimates of the welfare effects of the more efficient pricing of other telecommunications services, such as local measured service<sup>38</sup> and eliminating free directory assistance<sup>39</sup> are large enough to suggest that the gains from adjusting the SLC could be quite large as well. Also, the current gains from past regulatory reform in the telecommunications industry are estimated to be between \$.73 billion and \$1.6 billion annually while the total potential gains are \$11.8 billion annually.<sup>40</sup> Certainly, an increase in the SLC, and commensurate reductions in switched access/long-distance prices must account for a significant component of the total potential welfare gain.

In economics, welfare gains and losses are measured with respect to an economically efficient result. The standard by which "first-best" economic efficiency is measured is the quantity of services that customers would demand if services were priced at marginal cost.<sup>41</sup> Because of the economies of scale and

36. *Id.* at 65 ("The additional welfare loss resulting from cross subsidization would appear in the range of \$1.1 to \$1.5 billion annually."). Since the telecommunications providers were rate-of-return regulated in 1975 the net loss in economic welfare represents a net loss in consumer surplus. This is the loss in consumer surplus due to inefficient pricing of local service and toll service beyond a second-best or Ramsey optimal set of prices. *See infra* note 42 on Ramsey pricing.

37. *See also* Robert W. Hahn & John A. Hird, *The Costs and Benefits of Regulation: Review and Synthesis*, 8 YALE J. ON REG. 233, 261-78 (1991) (discussing notes 30-36 and accompanying text).

38. Griffin & Mayor, *supra* note 25. They estimate a \$.4 to \$.8 billion annual welfare gain that could be achieved through a move to an economically efficient local measured service pricing of local service in lieu of a single-part flat rate service price. The authors note that existing local measured service programs generally have usage rates set so high as to subsidize subscriber access. *See Wenders, supra* note 2, at 86 ("In our judgment, a less conservative approach could easily have yielded net benefits of twice that found by Griffin and Mayor. . ."). *See also* CRANDALL, *supra* note 2, at 141-43; Bridger Mitchell, *Optimal Pricing of Local Telephone Service*, 68 AM. ECON. REV. 517 (1978). *But cf.* ROLLA E. PARK & BRIDGER M. MITCHELL, RAND CORP., OPTIMAL PEAK-LOAD PRICING FOR LOCAL TELEPHONE CALLS (1986) (indicating that "peak-load pricing," but not necessarily local measured service, may not improve welfare).

39. George Daly & Thomas Mayor, *Estimating the Value of a Missing Market: The Economics of Directory Assistance*, 23 J.L. & ECON. 147 (1980) (estimating the welfare gain from eliminating free directory assistance at \$.5 billion annually).

40. Clifford Winston, *Economic Deregulation: Days of Reasoning for Microeconomists*, 31 J. ECON. LIT. 1263, 1284 (1993).

41. *See generally* JACK HIRSCHLEIFER, PRICE THEORY AND APPLICATIONS 187-90 (1976) (providing an intuitive explanation of efficiency in exchange and reductions in welfare with variations away from the efficient result); Wenders, *supra* note 2, at 11-32.

scope in telecommunications, it is not possible to price services at marginal cost; the joint and common costs of the LEC providing service would not be recovered. Under such circumstances, the second-best economically efficient result is obtained by minimizing the deviation in customers' quantities demanded away from the first-best optimal quantities. This is achieved through "Ramsey pricing": by instituting greater price increases for inelastically demanded services and relatively small increases for elastically demanded services.<sup>42</sup>

In telecommunications, customers' demand for toll services is relatively elastic while customers' demand for subscriber access is quite inelastic.<sup>43</sup> In essence, a dollar of contribution toward common costs garnered through an increase in the SLC leads to a very minor deviation in the quantity demanded away from the optimal quantity; however, a dollar obtained through switched access charges and higher long-distance rates leads to a relatively large divergence in the quantity demanded away from the optimal quantity.

In addition to the gains in economic efficiency that can occur in the downstream/final consumer market, there are efficiency gains that can occur in toll production due to an increase in the SLC and a corresponding reduction in switched access charges. It is now well-known in the telecommunications industry that interexchange carriers, including interLATA long-distance providers, have alternatives to purchasing LEC access services. When LEC access services are priced substantially above cost there is tremendous potential for long-distance providers to substitute away from LEC services, reducing economic efficiency in production.<sup>44</sup> The alternatives to LEC switched access services are not

42. When such markups occur with a single uniform price for each service, the approach is called Ramsey pricing after economist Frank Ramsey. See Frank P. Ramsey, *A Contribution to the Theory of Taxation*, 37 *Econ. J.* 47 (1927). A derivation of Ramsey pricing is contained in William J. Baumol & David F. Bradford, *Optimal Departures from Marginal Cost Pricing*, 60 *AM. Econ. Rev.* 265 (1970). Useful general discussions of Ramsey pricing may be found in SAWYER V. BERO & JOHN TCHERNHART, *NATURAL MONOPOLY REGULATION: PRINCIPLES AND PRACTICE* 55-59 (1988); STEPHEN J. BROWN & DAVID S. SIBLEY, *THE THEORY OF PUBLIC UTILITY PRICING* 39-45 (1986); KENNETH E. TRAIN, *OPTIMAL REGULATION: THE ECONOMIC THEORY OF NATURAL MONOPOLY* 115-45 (1991); MICHAEL WATERSON, *REGULATION OF THE FIRM AND NATURAL MONOPOLY* 23-25 (1988); WENDERS, *supra* note 2, at 67-77; EDWARD E. ZAJAC, *FAIRNESS OR EFFICIENCY: AN INTRODUCTION TO PUBLIC UTILITY PRICING* 21-32 (1978); William J. Baumol, *Ramsey Pricing*, 4 *NEW PALGRAVE DICTIONARY OF ECON.* 49 (John Eatwell et al. eds., 1987). See generally Agnar Sandmo, *Optimal Taxation—An Introduction to the Literature*, 6 *J. Pub. Econ.* 37 (1976). See, e.g., Henry McFarland, *Ramsey Pricing of Inputs with Downstream Monopoly Power and Regulation: Implications for Railroad Rate Setting*, 20 *J. OF TRANSPORT ECON. & POL'Y* 81 (1986); Barbara J. Spencer & James A. Brander, *Second Best Pricing of Publicly Produced Inputs*, 20 *J. Pub. Econ.* 113 (1983) (regarding applications of the principle).

43. See generally LESTER D. TAYLOR, *TELECOMMUNICATIONS DEMAND IN THEORY AND PRACTICE* 85-128 (1994) and sources cited therein.

44. See generally GERALD W. BROCK, *THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE* (1981); UNITED STATES TELEPHONE ASSOCIATION, *BYPASS STUDY* (1984) (on file with author); MITCHELL & VOGELSON, *supra* note 2, at 216-21; WENDERS, *supra* note 2, at 89-90, 161-67, 253-78; Stephen P. Bradley & Jerry A. Hausman, *Future Competition in Telecommunications*, in *FUTURE COMPETITION IN TELECOMMUNICATIONS* 1, 41 (Stephen P. Bradley & Jerry A. Hausman eds. 1989); Bruce L. Egan & Susan Masonson, *Where is the Bypass Bogyman?*, 94 *TEL. Eng'g & MGMT.* 33 (1990); Grandon Gill et al., *Bypass of Local Operating Telephone Companies: Opportunities and Policy Issues*, in *FUTURE COMPETITION IN TELECOMMUNICATIONS* 1, 253 (Stephen P. Bradley & Jerry A. Hausman eds. 1989); Peter J. Grandstaff & John S. Watters, *Switched Access Competition in U.S. Telephony: Evidence and Interpretation*, *Rev. Bus.* 19 (1989); Kaserman & Mayo, *supra* note

constrained to interexchange carriers; end users may also choose to deploy a private system or lease capacity from a third party. In either instance, it is quite possible that the alternative is more costly than the provision of service by the incumbent LEC, especially when LEC facilities already exist, yet the price to the final customer of the alternative is lower.

## VI. An Increase in the SLC Need Not Increase Customers' Total Bills or Harm Universal Service

A common misconception in telecommunications is that the institution of, or increase in, a subscriber line charge will necessarily increase the total bill of residential customers. Because of the gains in economic efficiency from the institution of a SLC, a reduction in switched access charges and a consequent reduction in toll charges, customers, on average, should be better off. Between 1983 and 1986, the inflation-adjusted total residential telephone bill for the South Central Bell territory fell by \$2.91 (6.9 percent) while the bill for the Southern Bell territory fell \$7.36 (16.8 percent).<sup>45</sup> Between 1983 and December 1989, the average price of long-distance calling fell 44.5 percent interstate and 24.1 percent intrastate.<sup>46</sup>

A study projected the effect of a \$3.50 SLC and found that "[r]esidence subscribers, on average, would see toll bills \$6.37 lower . . ."<sup>47</sup> or a minimum \$2.87 per month increase in consumer surplus per residential customer.<sup>48</sup> The \$3.50 SLC was projected to lead to a minimum \$2.77 increase in consumer surplus for single line business customers as well.<sup>49</sup> A later study of the effects of the federal SLC on residential bills<sup>50</sup> was even more dramatic. The study

11, at 137-38; Steve G. Parsons & Michael R. Ward, *Factor Substitution in Telecommunications*, 62 S. ECON. J. 405, 410 (1995); Steve G. Parsons & Michael R. Ward, *The Influence of Regulation on Marginal Factor Cost: Access Markets in U.S. Telecommunications*, INFO. ECON. AND POL'Y, forthcoming 1996 (on file with author); Victor & Davidson, *supra* note 2, at 12-13; Dennis L. Weisman & Donald J. Kridel, *Forecasting Competition Entry: The Case of Bypass Adoption in Telecommunications*, 6 INT. J. FORECASTING 65 (1990); BELL COMMUNICATIONS RESEARCH, INC., THE IMPACT OF END USER CHARGES ON BYPASS AND UNIVERSAL TELEPHONE SERVICE (1984); CRITERION INCORPORATED, MARKET INFORMATION, OPPORTUNITY AND COMPETITIVE VULNERABILITY: ASSESSING COMPETITIVE VULNERABILITY IN U.S. TELECOMMUNICATIONS MARKETS (1990) (on file with author); GERALD W. BROCK, BYPASS OF THE LOCAL EXCHANGE: A QUANTITATIVE ASSESSMENT (F.C.C. Working Paper Series No. 12, 1984).

45. Comments of the BellSouth Corporation at 10, *In re MTS and WATS Market Structure* (F.C.C. 1986) (Nos. 78-72 and 80-286) [hereinafter *BellSouth Study*].

46. See FEDERAL-STATE JOINT BOARD, F.C.C. MONITORING REPORT CC DOCKET No. 87-339, at 246 (1995). See also Alfred E. Kahn,  *deregulation: Looking Backward and Looking Forward*, 7 YALE J. ON REG. 325, 343-44 n.41 (1990).

47. Halpin et al., *supra* note 8, at 12.

48. The \$2.87 gain is that which would occur if the consumer purchases no additional long-distance service. However, the consumer will likely purchase some additional units of long-distance service, which have a value to the consumer greater than the new price. See generally, HIRSHLEIFER, *supra* note 41, at 184-95; WENDERS, *supra* note 2, at 47-50; Robert D. Willig, *Consumer's Surplus Without Apology*, 66 AM. ECON. REV. 589 (1976).

49. Halpin et al., *supra* note 8, at 12.

50. Larson et al., *supra* note 8.



measured the average bills of residential customers and found that due to the reductions in interexchange carrier access charges corresponding to a \$2.60 SLC, "[t]he average residential subscriber's interstate long-distance bill fell by \$6.48 . . .,"<sup>51</sup> netting at least a \$3.88 monthly increase in consumer surplus for residential customers. An unpublished study by Stanford University Professor Frank Wolak states: "[b]alancing these local service price increases with reduction in long-distance access charges as would result if the cross-subsidies from long-distance service to local service were eliminated, appears to result in net consumer welfare gains to the majority of households in our sample."<sup>52</sup> A recent study finds that an additional \$2.60 increase in the SLC for residential customers alone would yield a net gain of over \$4.00 per subscriber and a net gain in consumer surplus of over \$7 billion annually.<sup>53</sup> On balance, the institution of a SLC or an increase in the SLC leads to reductions in access charges and toll prices that are more than compensatory for the typical residential customer.

Surprisingly, it appears that low-income and senior citizen groups also benefited from the institution of the SLC. One study found "[t]he low-income area subscriber benefits from SLC with an average bill reduction of \$3.39 per month"<sup>54</sup>; and "[s]enior citizen subscribers benefit from SLCs by an average net bill reduction of \$1.75 per month."<sup>55</sup> Also "[o]n average, low-income area subscribers spend about the same amount of money per month on discretionary services . . . as the average customer does," and a similar amount on long-distance service.<sup>56</sup> Since the AT&T divestiture, it appears that toll usage by low-income households and senior citizens has grown at a much more rapid rate than for the population in total.<sup>57</sup>

There is reason to believe that the estimated benefits to residential consumers in at least some of these studies may be understated.<sup>58</sup> An important factor that is neglected in these studies is that the institution of a SLC and corresponding reductions in switched access charges should reduce bypass of the local telephone company's switched access service;<sup>59</sup> reduced bypass should reduce, delay, or

51. *Id.* at 340.

52. Frank A. Wolak, Can Universal Service Survive in a Competitive Telecommunications Environment? Evidence from the Consumer Expenditure Survey, Remarks at Rutgers University Advanced Workshop in Regulation and Public Utility Economics (July 1995) (transcript on file with author).

53. Thomas J. Makarewicz, How Consumers Would Benefit From More Efficient Telecommunications Pricing 5 (Nov. 1995) (unpublished manuscript, on file with author).

54. Larson et al., *supra* note 8, at 345 (footnote omitted).

55. *Id.* at 347 (footnote omitted).

56. *Id.* at 345. See also Telephone Company Penetration Project: Disconnect Study 3-4 (1993) (showing that long-distance provider toll expenditures for customers disconnected for nonpayment are more than twice as great as local service, and that expenditures for optional services for customers in general are nearly as great as expenditures for local service) (unpublished report on file with author) [hereinafter C&P Disconnect Study]; Halpin et al., *supra* note 8, at 9 (Table 1) (noting that low-income residential customers even spend 22% more on custom calling features than the average customer spends).

57. See Halpin et al., *supra* note 8, at 10.

58. *Id.* at 16 (discussing four reasons why the study likely understates the benefits to consumers of the SLC).

59. See *supra* note 44 and accompanying text on bypass.

eliminate the need to raise other service prices. One study that incorporates the effects of reduced bypass of the local telephone company was produced by Criterion Incorporated for the state of Wisconsin.<sup>60</sup> In that study, the equivalent of a \$2.88 increase in the SLC for residential customers only resulted in a \$3.68 average reduction in residential monthly toll charges and a \$24.63 average reduction in business monthly toll charges.<sup>61</sup> These results reflect a comparison of the rates that would exist with a lower SLC and higher switched access charges and commensurately greater bypass of the local exchange company. This leads to a lower bound estimate of an average increase in consumer surplus of \$.80 for residential customers due to a \$2.88 increase in the SLC for residential customers only, and yielding a \$24.63 minimum gain for business customers.<sup>62</sup>

Several other unpublished studies also indicate that institution of the SLC caused average telephone bills to fall.<sup>63</sup> In contrast, two unpublished studies suggest that the average residential customers and low-income residential customers do not make enough long-distance calls to benefit from the institution of the SLC.<sup>64</sup> However, these two studies apparently underestimated the reductions in long-distance charges that would occur due to the institution of the SLC.<sup>65</sup>

There is also evidence that an increase in the SLC will not generally cause customers to disconnect their telephone service. Studies by BellSouth and NYNEX submitted to the FCC indicate that when lower toll rates and the reduced incentive to bypass are taken into account, subscribership is stable or

60. Prefiled testimony of Frank J. Alessio on behalf of Wisconsin Bell Telephone, *In re* Investigation of the Proposed InterLATA Access Charge Tariff of Wisconsin Bell, Inc., the Intrastate Capacity Plan, and Other Related InterLATA Compensation Matters (Pub. Serv. Comm'n of Wis. 1987) (No. 7620-TR-100) (attached exhibit to the prefiled testimony) (on file with author) [hereinafter Criterion Study]; BellSouth Study, *supra* note 45; Comments of the NYNEX Telephone Companies at 2, *In re* MTS and WATS Market Structure (F.C.C. 1986) (Nos. 78-72 and 80-286) [hereinafter NYNEX Study], also incorporate bypass in their analyses.

61. Criterion Study, *supra* note 60.

62. *See id.* This is the lower bound because it is based on an estimate assuming customers will not obtain additional value from greater purchases of lower-priced long-distance service.

63. *Id.*; BellSouth Study, *supra* note 45, at 20-24 ("the comparison shows that the total average residential bill would be less if the SLC is increased to \$4.00.") *Id.* at 24; NYNEX Study, *supra* note 60 ("Accordingly, the potential bypass cost savings and subsidy and toll rate reductions . . . ranging on average from \$3.40 to \$5.38 per subscriber line per month, would more than offset a \$2 increase in the Subscriber Line Charge." *Id.*); *see also* GRANDALL, *supra* note 2, at 106-45 (discussing some of the unpublished studies); Halpin et al., *supra* note 8, at 16 (discussing some of the unpublished studies); R. Carter Hill et al., *Assessing the Feasibility of Modeling the Economic Impacts Associated with Changing Carrier Access and Customer Line Charges: A Generic Study of the Southern Region*, in *TELECOMMUNICATION IN THE POST-DIVESTITURE ERA* 215 (Albert L. Danielson & David R. Kamerschen eds., 1986).

64. MARK N. COOPER & GENE KIMMELMAN, CONSUMER FEDERATION OF AMERICA, *DIVESTITURE PLUS THREE: STILL CRAZY AFTER ALL THESE YEARS* 5 (1986) (on file with author); MARK N. COOPER & MITCHELL SHAPIRO, MICHIGAN CITIZENS LOBBY, *LOW INCOME HOUSEHOLDS IN THE POST DIVESTITURE ERA: A STUDY OF TELEPHONE SUBSCRIBERSHIP AND USE IN MICHIGAN* 13 (1986) (on file with author). For a brief discussion of these studies, see Halpin et al., *supra* note 8, at 16.

65. *See* Halpin et al., *supra* note 8, at 16.

may actually be greater with a higher SLC.<sup>66</sup> This appears to be true even for low-income, elderly and rural households. In a Connecticut study of respondents without telephone service, "[o]f households who cited cost as a barrier to having telephone service, at least 87% perceived they could afford a monthly service charge of \$10."<sup>67</sup> The Connecticut study also found that of those customers having to pay off debts from a previous telephone account before obtaining service, 57 percent stated that long-distance calls caused all or most of the outstanding bill.<sup>68</sup>

An unpublished study for the State of Arkansas found that only 25 percent of customers who disconnect do so for "economic reasons."<sup>69</sup> Of those disconnecting for economic reasons, approximately 30 percent somewhat or strongly agreed that the charges for service to make local calls became so great that they could not afford to keep the telephone number, while approximately 60 percent agreed that long-distance bills became too great and therefore disconnected.<sup>70</sup> Another unpublished study<sup>71</sup> found that: "[m]ost persons who discontinue service for economic reasons do not disconnect because of high local service charges, but disconnect due to high toll charges (among disconnectors, the average local service charge is \$14.33 and the average long distance bill is \$43.88)."<sup>72</sup>

Studies ordered by the Public Service Commission of the District of Columbia indicate that "[b]y far the largest component of the current outstanding balance for customers who are disconnected for non-payment is the level of interexchange carrier charges they have incurred for long-distance services they have used."<sup>73</sup> IXC toll accounted for 52 percent of the telecommunications bill for the 3,992 disconnect records in the study, while local service accounted for only 21 percent

66. BellSouth Study, *supra* note 45, at 24 ("Moreover, because the \$4.00 SLC would have the positive effects of reducing bypass and increasing toll usage, the over effect is to increase the number of subscribers on the network."); NYNEX Study, *supra* note 60, at 17 ("the percentage of households with telephones remained essentially unchanged in all of these categories.").

67. RESOURCE PLANNING AND MANAGEMENT SYSTEMS, INC., AN EXPLORATORY STUDY OF LOW-INCOME TELEPHONE SUBSCRIBERS AND NON-SUBSCRIBERS IN CONNECTICUT 7 (May 25, 1988) (prepared for the Conn. Dep't of Pub. Util. Control) (on file with author).

68. *Id.*

69. Richard A. Dutton & Erik R. Hazel, Arkansas Disconnect Study: The Third Phase Questionnaire (1988) (on file with author).

70. *Id.* at 27-28. Of those disconnecting for economic reasons, 38% were for long-distance only, 19% for local and long-distance charges, and 8% for local only. *See also* Nancy E. Keyton et al., Kansas Disconnect Study 3 (1986) (on file with author) (11.3% disconnected for local only and 24.5% for local and long-distance charges).

71. Southwestern Bell Telephone Revenues and Public Affairs, Economic Analysis of Subscriber Line Charges 7 (1987) (unpublished manuscript on file with author).

72. C&P Telephone Company Telephone Penetration Project Door-to-Door Survey (1993) (unpublished report on file with author) [hereinafter C&P Survey]; C&P Disconnect Study, *supra* note 56; C&P Telephone Company Telephone Penetration Project Review of Barriers to Getting Back on the Network (1993) (unpublished report on file with author) [hereinafter C&P Review of Barriers].

73. Letter from Sherry F. Bellamy and Michael D. Lowe, Attorneys for C&P Telephone Company 3 (Oct. 1, 1993) (regarding C&P's submission of telephone penetration studies). *See also*, Notice of Proposed Rulemaking, *In re* Amendment of the Commission's Rule and Policies to Increase Subscriberhip and Usage of the Public Switched Network, (F.C.C. 1995) (CC Docket No. 95-115) [hereinafter FCC NPRM on Subscriberhip 1995].

of the bill.<sup>74</sup> A survey of phoneless customers in Camden, New Jersey, also found the size of the toll bill was significant while "[n]o one checked monthly rental (local phone) charges alone as a reason for disconnection."<sup>75</sup> This study also found that at least half of the phoneless had VCRs and indicated that television or cable television was more important than telephone service.<sup>76</sup> In response to the body of evidence about the importance of LXC toll bills for customers who are disconnected, some analysts have raised the issue of toll restriction for some classes of customers, where toll calling is either completely restricted or limited to some amount.<sup>77</sup>

A very detailed 1993 survey of phoneless customers in California contains many noteworthy findings.<sup>78</sup> Phonelessness is not easily eliminated with lower monthly telephone charges since many of this group are renters (often the existence of roommates leads to disputes over phone bills) and are highly mobile.<sup>79</sup> Many of the phoneless do not find being without a phone as highly inconvenient and one survey found that 45 percent had stopped service themselves.<sup>80</sup> In addition, many phoneless have never had phone service and have never tried to get it.<sup>81</sup>

Disconnection does not appear to be a substantial problem for senior citizens. An unpublished study of the state of Kansas found that less than 3 percent of the households disconnecting telephone service had a resident older than 65.<sup>82</sup> Another unpublished study states "in general the Americans most prone to phonelessness are not rural and elderly as is often assumed."<sup>83</sup>

Clearly, public policy concerns over universal service should not be met with blanket subsidies to all residential subscribers. Kaserman and Mayo note:

Not only does the untargeted nature of the current system of cross-subsidization provide subsidies to a larger group than either of the above policy goals justifies, but it also creates the possibility of perverse payments that conflict with fundamental notions of equity. For example, such a policy may transfer funds from relatively poor subscribers with a particularly heavy demand for long-distance calls, such as older citizens whose families have moved away, to relatively wealthy subscribers who confine the

74. See C&P Disconnect Study, *supra* note 56, at 3. "Local" is defined to exclude the subscriber line charge.

75. See Milton Mueller & Jorge R. Schemant, *Universal Service from the Bottom Up: A Profile of Telecommunications Access in Camden, New Jersey 9* (1995) (unpublished study by the Rutgers University Project on Information Policy performed for Bell Atlantic) (hereinafter *Camden Study*) (on file with author). Note however, that this study has a very small sample size.

76. *Id.* at 11.

77. See, e.g., FCC NPRM on Subscribership 1995, *supra* note 73, at 7.

78. FIELD RESEARCH CORPORATION, *AFFORDABILITY OF TELEPHONE SERVICE* (1993) (Research conducted for General Telephone and Pacific Bell Telephone) (on file with author).

79. *Id.* at S-1 (96% were renters and 52% had lived at their current address less than one year).

80. *Id.* at S-5, S-7 (30% say it is not inconvenient and another 21% see it as somewhat inconvenient or only slightly inconvenient).

81. *Id.* at S-19 (35% have never had phone service and of those 79% have never tried to get it).

82. Keyton et al., *supra* note 70, at 3.

83. *Camden Study*, *supra* note 75, at 5.

bulk of their residential calls to the local exchange, perhaps because of access to a WATS line at work. This sort of regressive transfer is inimical to the goals of income redistribution and universal service.<sup>84</sup>

In a separate study, Kaserman and Mayo find no empirical evidence that subsidizing local service enhances universal service. "[W]e find no evidence that subscribership levels . . . exert any influence on the level of subsidization chosen by the various state public utility commissions. . . . [T]he cross-subsidy mechanism bears no causal relationship to the policy goal of universal service."<sup>85</sup>

Another empirical evaluation arrived at similar conclusions:

Our model estimates demonstrate that increased economic efficiency need not lead to decreased penetration. Indeed, the evidence from the period after the breakup of AT&T during the 1980's tends to show that increased penetration resulted in part from the combined effect of higher monthly basic access charges (the SLC plus local service charges) and lower long-distance prices.<sup>86</sup>

An increase in the SLC with an offsetting reduction in interexchange carrier access charges (and an expected reduction in IXC toll service prices) does not appear to pose a threat to universal service. For the average customer, the eventual reduction in toll bills that should occur due to the reduction in interexchange carrier access charges will more than offset the SLC; average total telephone bills should fall. In addition, it is well-known that customers are not sensitive to changes in local rates.<sup>87</sup> Therefore, an increase in the SLC will not harm universal service and should reduce the total telephone bill of the average telephone customer. Any residual concerns over universal service should be met with a means-based "lifeline" service,<sup>88</sup> government telephone assistance

84. Kaserman & Mayo, *supra* note 11, at 139.

85. Kaserman et al., *supra* note 2, at 244-45 (footnote omitted).

86. Hausman et al. 1993, *supra* note 26, at 183.

87. See generally TAYLOR, *supra* note 43, at 85-128, and sources cited therein. Empirical estimates of the demand elasticity of residential local subscriber access at current prices and penetration rates are virtually always below -.1, and generally below -.05. This means that an increase in the SLC equivalent to a 10% increase in the price of basic local service would cause less than a .5% reduction in the quantity of local service demanded, all other things equal, i.e., absent an offsetting reduction in toll prices. With an offsetting reduction in toll prices this effect should be even smaller. See also CRANDALL, *supra* note 2, at 110-25 (discussing the effects of the existing SLC: "the effect of lower [local telephone] rates on even the poorest of households is very small." *Id.* at 118).

88. "Lifeline" is a federally mandated subsidized basic service offering for low-income households, funded by interexchange carriers. See *In re MTS and WATS Market Structure*, 2 F.C.C.R. 2324 (1987) (Recommended Decision and Order). However, a study by Park & Mitchell suggests that penetration rates are relatively unaffected by local service pricing or lifeline offerings. The study finds that lifeline programs can result in substantial transfers of wealth from higher income to lower income individuals but penetration rates are relatively unaffected. ROLLA E. PARK & BRIDGER M. MITCHELL, RAND CORP., LOCAL TELEPHONE PRICING AND UNIVERSAL TELEPHONE SERVICE (1989) ("At current price levels, neither optional measured rates nor lifeline rates have much effect on telephone penetration even among low income households." *Id.* at v.); Christopher Garbacz, Assessing the Impact of FCC Lifeline and Link Up Programs on Telephone Penetration (July 5, 1995) (unpublished manuscript, on file with author) (presented at the Rutgers University Advanced Workshop in Regulation and Public Utility Economics) (estimates of a variant of Perli's economic model with 1990 Census Data broken to the state level indicate that even very large expenditure increases on Lifeline and Linkup programs have little effect on telephone penetration). An article by Makarewicz indicates that Lifeline customers do spend less on interLATA long distance

programs,<sup>89</sup> low-priced measured service options,<sup>90</sup> and possibly a link-up-America-type service.<sup>91</sup> It may be useful to selectively attempt to increase customers' awareness of these offerings.<sup>92</sup> These programs may or may not be welfare improving;<sup>93</sup> however, they are clearly superior to blanket subsidies to local service customers. "If direct subsidies can be targeted at low-income consumers, the inefficiencies in such a program will surely be less wasteful than the cross subsidization of all local service and the large subsidies to all rural consumers."<sup>94</sup>

## VII. Franchise Obligations and One-Time Facilities Placement Costs

One of the difficult issues in telecommunications pricing is dealing with the large costs of placing facilities well in advance of actual demand for service by customers. Such costs are incurred largely in order to satisfy the franchise obligation<sup>95</sup> to serve all customers in a timely manner. A large proportion of these costs are infrastructure-like costs, such as trenching or poles, and copper or fiber. These costs will vary with the number of customers served, but will, in large part, be independent of whether the customer actually signs up for service. In economic parlance, these costs are largely sunk at the time the LEC incurs them in order to satisfy its franchise obligation. Economic efficiency generally requires that price structures reflect cost structures. In this instance,

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than average residential customers. See Thomas J. Makarewicz, *The Effectiveness of Low-Income Telephone Assistance Programs: Southwestern Bell's Experience*, 15 TELCOMM. POL'Y 223, 233 (1991). See generally CRANDALL, *supra* note 2, at 140; MITCHELL & VOGLIANG, *supra* note 2, at 224-45.

89. See LELAND L. JOHNSON, RAND CORP., TELEPHONE ASSISTANCE PROGRAMS FOR LOW-INCOME HOUSEHOLDS: A PRELIMINARY ASSESSMENT (1988). See also Makarewicz, *supra* note 88; TAYLOR, *supra* note 43, at 106-07, citing Lester Taylor & Don Kridel, *Residential Demand for Access to the Telephone Network*, in TELECOMMUNICATIONS DEMAND MODELLING (A. De Fontenay et al. eds., 1990) (noting that in Texas, the impact on local penetration of an increase in the SLC is offset by about 40% because of the greater availability of measured service).

90. The vast majority of residential customers have unlimited local calling with flat rate options. See Makarewicz, *supra* note 88.

91. "Link-up-America" reduces the one-time telephone service connection charge. See *In re MTS and WATS Market Structure*, 52 Fed. Reg. 19,896 (F.C.C. 1987) (Recommended Decision and Order). See generally MITCHELL & VOGLIANG, *supra* note 2, at 224-45; Makarewicz, *supra* note 88.

92. See e.g., Dutton & Hazel, *supra* note 69, at 25 (indicating that 92% or 93% of respondents who disconnected their only number for an economic reason utilized flat rate service). Over 86% of customers live in areas in which link-up programs are available and over 70% of customers live in areas in which lifeline is available. See FEDERAL-STATE JOINT BOARD, *supra* note 46, at 76 (Table 2.9).

93. See *id.*

94. CRANDALL, *supra* note 2, at 119.

95. Franchise obligation is defined here as the minimal service requirement. See, e.g., PUB. UTIL. COMM'N OF TEX., SUBSTANTIVE RULES § 23.61-4 (1988). See also Dennis L. Weisman, *Competitive Markets and Carriers of Last Resort*, PUB. UTIL. FOR., July 6, 1989, at 17. See generally Dennis L. Weisman, *Default Capacity Tariffs: Smoothing the Transitional Regulatory Asymmetries in the Telecommunications Market*, 5 YALE J. ON REG. 149 (1988) (describing the implied contract of franchise obligation facing local telephone companies).

efficiency suggests that one-time costs incurred to honor the franchise obligation be recovered through a one-time charge. For instance, it may be possible to recover costs through a charge to developers for the last one-quarter mile of network necessary to serve the subdivision planned by the developer.<sup>96</sup> In this way the one-time costs are recovered through a one-time charge to the cost causer.

As local competition continues to expand, it will become increasingly important for LEC decisionmakers and regulators alike to recognize the true nature of economic costs. The costs incurred to satisfy the franchise obligation to serve all customers on a timely basis become largely sunk at the time the facilities are put in place. Economics clearly indicates that sunk costs should be ignored for all purposes except a determination of a total rate base for rate-of-return regulation.

There are important policy implications in two types of circumstances: (1) when the incumbent LEC has existing facilities, and (2) where new facilities must be placed to serve new customers. Consider first the case of existing facilities in the form of a hypothetical example. For a typical customer, the LEC spent \$1,500 in capital investment that will be unaffected by any future decisions by the LEC or the customer (the \$1,500 is sunk). For ease of calculation, assume that the \$1,500 could have been recovered (at least in the past) through a \$15 monthly charge. Also, there are costs of \$4 per month of simply keeping the line functional and able to be used by the customer. Finally, there are costs caused by usage or traffic by the customer; for a typical customer these usage costs are, hypothetically, \$6. In the past, these costs have been lumped together to describe the "cost" of basic local exchange service (both subscriber access and local usage). In this instance the "cost" would be \$25 per month (\$15 + \$4 + \$6). Without a subsidy to this service, the monthly price for basic local exchange service should be at least \$25.

However, in this example, the \$1,500 initial investment does not vary with the customer's decision to have telephone service of any kind. The \$1,500 has already been spent and is sunk. An economically efficient price structure would be one in which the \$1,500 is recovered through a one-time charge to the customer or developer; \$4 is recovered through a monthly recurring charge; and the \$6 in traffic-sensitive costs are recovered through a traffic-sensitive charge. Joint and common costs of the company would be recovered through any of the charges depending on demand conditions and other market information.

Further assume that new technology is available in certain areas (e.g., high density city centers) in which any firm can provide telecommunications subscriber access for \$16 per month with no sunk costs. This new technology provides the same access service as provided by the old technology through the \$1,500 initial expenditure and \$4 monthly recurring cost. Also assume that traffic-sensitive costs are identical under each technology, at \$6 for the average

96. The developer may choose to only place facilities to a certain proportion of houses, e.g., 92%, offering some houses without telephone access at a discounted price.

customer. If a new entrant employs the new technology in the city center, it would appear that the new entrant is more efficient than the LEC with costs for a subscriber-access-only service of only \$16 and a flat rate local service (access and traffic/usage) at \$22 (\$16 + \$6).<sup>97</sup> The entrant appears to be more efficient than the LEC and therefore should be able to price the LEC out of the market.

However, this appearance is incorrect and is based on an improper comparison of LEC sunk costs with the prospective costs of the new technology. The LEC, in this example, continues to be the least cost, most efficient provider in the city center since a large proportion of the historic cost of placing facilities is now sunk and invariant to decisions regarding the ongoing provision of service. Sound business decisions, sound public policy, and economic efficiency all ignore sunk costs for pricing purposes. The forward-looking cost of providing access alone, where facilities already exist, is \$4 for the LEC, and the average forward-looking incremental cost for basic local exchange service would be \$10 in this example (\$4 access + \$6 usage). These costs should form the lower bound for pricing services in the face of competition *where facilities already exist*.

If the LEC has not already recovered the \$1500 initial investment, competitive entry in the city center may cause the repricing of other services or financial damage to the LEC. Traditional rate-of-return establishes a "rate base" and revenue requirement for the regulated firm that reflects historical investments.<sup>98</sup> Any undepreciated portion of a sunk investment remains in the rate base of the LEC. Under any regulatory environment, it is possible that market conditions will change sufficiently such that the incumbent will no longer be able to recover its historic investments even if the firm is granted complete pricing freedom.<sup>99</sup> The existence of any stranded investment (sunk costs) today requires that regulators move to allow more rapid depreciation of assets now before market conditions preclude the realization of such compensatory recovery in the future.<sup>100</sup>

The second policy issue involves the continued placement of new facilities for new customers that will become sunk upon investment. As new customers move to new rural or unconcentrated suburban locations, the provision of telephone service requires additional investments in facilities, which will become sunk when placed. The cost of providing service in these circumstances may be much higher than the cost of serving the average customer and these

97. If new facilities were required in the city center (e.g., for a new customer location), the incumbent LEC would likely deploy the new technology as well.

98. Historical investments determine the total revenue the regulated firm is allowed to earn. However, these calculations should not determine the lower bound for pricing individual services. A similar problem occurs in reverse when the market value of the assets of a regulated company exceed the historical value listed on the regulated books (as might occur with land and buildings).

99. See Michael A. Crew & Paul R. Kleindorfer, *Economic Depreciation and the Regulated Firm under Competition and Technological Change*, 4 J. OF REG. ECON. 51 (1992) ("There is a limited time for regulators to take remedial action, and if timely action is not taken there is no alternative but for the company to fail to recover some of its capital." *Id.* at 51).

100. *Id.*



costs are exacerbated by the franchise obligation to place facilities before demand actually materializes. These investments are risky in part because future technological innovations could make them obsolete, or at least provide only limited opportunities for capital recovery. Placing facilities to serve all customers in a timely manner requires construction in high-cost, long-route/long-loop, and low-density areas and the creation of a substantial level of underutilized capacity. These high-cost operations argue strongly for revising the franchise obligation. It may become necessary that high cost areas only be served when demand actually exists, with some delay. Also, high cost areas may necessitate up-front construction charges or higher monthly charges. Some customers, in high cost areas, may have to be satisfied with cellular telephone service. The traditional franchise obligation may simply be unrealistic in the face of increased competitive pressures, or may at least create costs greater than its value.

### VIII. Conclusion

The subscriber line charge currently produces over \$6 billion in annual revenues to the LECs. However, LEC traffic-sensitive switched access charges to long-distance carriers produce over \$11 billion in annual revenues in the interstate jurisdiction alone. Despite the institution of a federally mandated SLC of up to \$3.50 for residential customers, the SLC is inefficiently low, while switched access charges and long-distance rates remain too high. This policy conclusion is more obvious when one recognizes that the nontraffic-sensitive costs of basic subscriber loops are not common costs *to the local telephone company* of producing telecommunications services, even though the price of local service may be a common cost *to the customer* of various activities. It is best to consider customers' access to telephone networks as a separate service because proper cost analysis is more obvious in this context. Regardless of the consideration of so-called loop costs, fully distributed costs cannot be used to justify the current high levels of switched access charges to long-distance carriers or the low level of the SLC. The superior economic efficiency of increasing the SLC and reducing long-distance rates appears to be sufficient to fuel gains to consumers; consumer surplus should be greater since customers' total bills (SLC plus long distance) will fall at current consumption levels. This factor and others indicate that universal service need not be threatened by the proposed policy of an increased subscriber line charge.

This phenomenon is not confined to federal regulation. In the states, there has also been a longstanding tradition to price intrastate access and intrastate toll services at rates that are inefficiently high. Instituting an intrastate SLC, allowing lower toll and access rates, offers the potential for tremendous gains as well. Going forward, it will also be useful to distinguish between the expenditures necessary to fulfill any franchise obligation to serve all customers on a timely basis, and the costs that should properly establish the lower bound for pricing subscriber access services.